

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
<small>Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.</small>				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE Dec 1996		3. REPORT TYPE AND DATES COVERED
4. TITLE AND SUBTITLE University of Florida Student Science Training Program 1994 (SSTP 1994)			5. FUNDING NUMBERS N00014-94-1-0529	
6. AUTHOR(S)				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) University of Florida 111 Norman Hall P O Box 117035 Gainesville, Florida 32611 - 7035			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Office of Naval Research 800 N. Quincy Street Arlington, VA 22217-5660			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) The SSTP is an eight-week, residential program designed to give students interested in science the opportunity to work in a research laboratory, paired with a mentor. Fifteen (15) students were funded for this program in 1994.				
14. SUBJECT TERMS			15. NUMBER OF PAGES	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT C		18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT

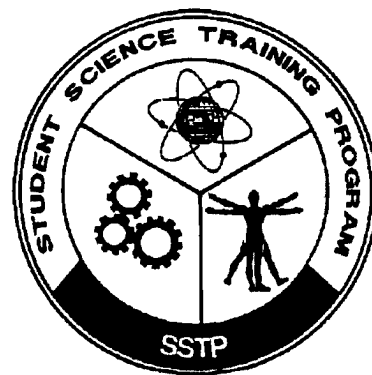
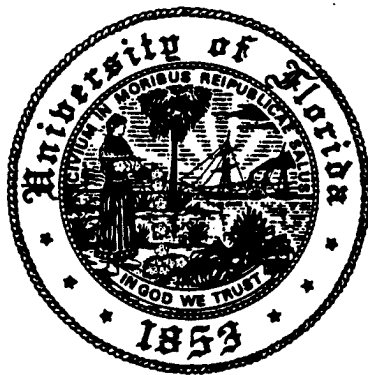
NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18
298-102

DTIC QUALITY INSPECTED 1

36th Annual Student Science Training Program (SSTP)

June 12 —August 6, 1994



Administered by the

Florida Foundation for Future Scientists

at the

University of Florida, Gainesville

DTIC QUALITY INSPECTED 1

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Florida Foundation for Future Scientists

—— Purpose and Objectives ——

The Florida Foundation for Future Scientists (FFFS) is a statewide corporation, not-for-profit, authorized by the 1957 Legislature of the State of Florida to discover scientific and technical talent in the schools of Florida and to encourage the pursuit of careers in science and engineering. In meeting its obligations, the Foundation promotes and administrates the following:

—— Science and Engineering Youth Programs ——

These programs establish guidelines, rules and procedures for local, regional, and statewide competitions; award scholarships and prizes; and coordinate industrial, professional, and educational activities related to careers in science and engineering.

—— Science and Engineering Competitions ——

The major endeavors of the Florida Foundation for Future Scientists are the Annual State Science and Engineering Fair of Florida (SSEF), the Florida Junior Science Engineering, and Humanities Symposium (JSEHS), the Student Science Training Program (SSTP), the Florida Accelerated Initiatives Seminar (FAIS), the Future Leaders Seminar (FLS), the Junior Engineering Technical Society (JETS) Test of Engineering Aptitude, Math and Science Competition (TEAMS), the Teacher Research Update Experience (TRUE), and the Florida Recognition Ceremony of the Duke Talent Identification Search (TIP). The FFFS also cooperates with such programs as the Florida Junior Academy of Science (FJAS) and the Westinghouse Science Talent Search (WSTS).



The FFFS is housed at the University of Florida and is provided partial support by the Provost through the Office of Academic Affairs. Major programs and operating expenses are financed by grants, program fees, donations, annual support, and contributions from federal agencies, the State Legislature, industry, business, professional and technical organizations, and individuals.

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Program Descriptions

The Student Science Training Program

● *Enhancing the science and engineering education of precollege students for 36 years*

From Sunday, June 12 to Saturday, August 6, 1994, 84 gifted and academically talented precollege students attended the 36th Annual Student Science Training Program (SSTP) at the University of Florida in Gainesville, Florida. The SSTP is an eight-week residential research participation program focusing on science and engineering.

Students considered eligible for the SSTP are academically talented, designated by the state of Florida Department of Education as gifted, or have demonstrated potential for success in science. Those who applied were required to be willing to work hard for eight weeks.

University of Florida faculty and staff selection panel members ranked candidates by evaluating the school nomination form, the student form, high school transcript with standardized test scores, essay and letters of recommendation. Nearly 300 applications were considered.

The 1994 SSTP participants represented 40 different schools in 22 Florida counties. Four students attended from out of state. Of the 83 students who completed the program, 78 (94%) were rising seniors and 5 (6%) were rising juniors. The composition of the population was diverse with 36 (42%) of the students indicating membership in an ethnic minority group. Of the total student population, 26 (31%) of the students were Asian, 8 (10%) were African American, 1 (1%) was Hispanic, and 1 (1%) was Other.

The total student population consisted of 43 (51%) females and 41 (49%) males. Within the minority population, there were 19 (52%) males and 17 (48%) females. The male minority population was composed of 12 (63%) Asians, 5 (27%) African Americans, 1 (5%) Hispanic and 1 (5%) Other. The female minority population was composed of 14 (82%) Asians, and 3 (18%) African Americans.

For 25 hours each week the students participated in research under the guidance of a University of Florida professor or research professional. Participants were matched with mentors according to their interests and academic backgrounds. Participants constructed posters, gave oral presentations and developed an experimental research paper summarizing, explaining and describing their summer work.

Three times each week researchers, academicians and other professionals addressed the participants in a morning lecture series on college-level topics which spanned the scientific spectrum from physical anthropology to black holes and the galaxy. Students participated in an ethics forum biweekly, which further stimulated their interest in learning and discussing new ideas.

Participants assigned to similar research projects met two or more times a week in study groups to exchange information and details concerning their laboratory research. This time was used for problem solving, peer support and group discussion. Students were encouraged to share research experiences and to acquaint themselves with the work of others. Two residential counselors served as study-group leaders to facilitate sessions and to ensure completion of academic requirements for each group. These study-group leaders served as liaisons between the program administrators and the professors who sponsored the participants. They also provided information and encouragement to each of the participants, and gave them individual attention and direction.

For recreation and relaxation, students participated in many activities such as dances, covered-dish dinners, bowling, a pizza party, a talent show and ice cream socials. Weekend field trips provided the students with a chance to see the state of Florida. The trips were fun as well as educational.

Students visited the historic city of St. Augustine, the CV Whitney Marine Laboratory, Devil's Millhopper State Geological Site, Paynes Prairie State Preserve, and the Samuel P. Harn Museum of Art. Weekend field trips included a tubing trip down the Ichetucknee River and a visit to Walt Disney World's Magic Kingdom or EPCOT Center.

Eight weeks of hard work and intense dedication were concluded at the Awards Banquet. Awards were given to students who demonstrated exceptional talent and hard work in their research papers, poster seminars and oral presentations. Twenty students were selected to receive nominations to speak at the Florida Junior Science, Engineering and Humanities Symposium (JSEHS) based on outstanding oral presentations of summer laboratory research projects.

Throughout the summer, students matured both intellectually and emotionally, developed friendships and fostered a good sense of communal awareness. Self-discovery of personal strengths and weaknesses and the setting of educational and professional goals contributed to participant development.

The value of cumulative summer experience does not end with the program. Many of these students return home to make presentations to science and mathematics classes at their high schools, service organizations, clubs and various other community meetings. The skills they master and the experience they gain during the SSTP provides a wellspring of confidence to be used throughout the participants' personal and professional lives.

Scheduled Activities

**Student Science Training Program
General Schedule**

Monday—Wednesday—Friday

8:15 AM - 9:15 AM Lecture
9:30 AM - 5:00 PM Laboratory Research
5:00 PM - 7:00 PM Dinner/Free Time
7:00 PM - 7:30 PM Study Group Briefing
7:30 PM - 9:00 PM Study Group Session
8:00 PM - 11:00 PM Social Activity (Friday)

Tuesday—Thursday

8:45 AM - 9:15 AM General Session
9:30 AM - 10:45 AM . . . Computers/Statistics Class
11:00 AM - 5:00 PM Laboratory Research
5:00 PM - 7:00 PM Dinner/Free Time
7:00 PM - 9:00 PM . . . Computers/Statistics Class

Field Trips and Activities

St. Augustine/Marineland Field Trip

In the morning, students were mesmerized by leaping dolphins and talking seals during their visit to Marineland. Students then toured the beautiful and historic city of St. Augustine. They walked on the streets of old town and the grounds of Fort Matanzas, all the while getting a taste of colonial life.. They spent the rest of the day sunning on the beaches of Anastasia State Park.

Ichetucknee Field Trip

During a hot summer day, students innertubed down the chilly waters of the Ichetucknee River. While drifting along they were exposed to various forms of unique and scarce plant life.

EPCOT Center and Walt Disney World Field Trip

Students viewed various exhibits showcasing the latest advances in many fields of industry and science, while also enjoying themselves on the numerous rides and attractions at the Magic Kingdom and EPCOT Center.

Gainesville Area Field Trips

Students were exposed to local karst topography (limestone landscape) by viewing the lush tropical environment of the Devil's Millhopper State Geological Site. The Devil's Millhopper visitor center provided area history. Students were then taken to Paynes Prairie State Nature Preserve, where they learned of local ecology. The 150-foot observation platform afforded students a better view of this impressive locale. The new Harn Museum offered students a look at many different art styles both past and present.

Fred Bear /Kanapaha Botanical Gardens

The Fred Bear Museum offered students a glimpse into the life of a great man. The museum exhibits the animals hunted by Fred Bear that he used to feed villages and families in foreign countries. Students then toured the grounds of the Kanapaha Botanical Gardens where they were shown rare and beautiful plants, from carnivorous Venus flytraps to mammoth lilly pads stretching over four feet in diameter.

Bowling/Pizza Party

Students were treated to pizza in the Beaty Commons where they had a chance to wind down and be with their friends. They were then given the chance to show off their bowling skills at a local alley while other students played pool and miniature golf.

Professor/Student Reception

On Friday, July 29, professors, parents, counselors, and students gathered at the Gainesville Woman's Club for an evening of enjoyment. There, everyone had the opportunity to interact in a social atmosphere. The evening included a dance and a slide show of the 1993 SSTP and FAIS programs.

Scheduled Activities

Classes and Workshops

Attendance in a college-level class was also a program requirement for SSTP. Introduction to Statistics and Introduction to Computer Programming are available for High School/College Dual Credit Enrollment. The Computer Applications Class was available for students new to computing. Students had computer sessions twice weekly and had access to the computer lab during all participant free time. These sessions enabled students to gain valuable hands-on experience with the computers. Students were required to take midterms and final exams.

Introduction to Computer Programming (CGS 3463)

Texts: Applied Mathematics for Programmers and Mathematics and Programming by Kenneth E. Iverson.

This course was a thorough introduction to computer programming using the APL programming language. During the first half of the course, the students learned the APL language and how to use variables and functions, write expressions, and create user-defined functions. Afterward, more advanced topics such as scoping rules, looping, recursion, and using graphs and trees were discussed. The students used their lab time to complete programming assignments using the techniques discussed during lecture.

Statistics (STA 3023)

Texts: Statistics by McClave and Dietrich and Using Statistics by Travers, Stout, Swift, and Sextro STA 3023 is a general introductory class into the field of statistics. Its challenging, college-level curriculum covered a wide range of topics from simple probabilities and normal distributions to confidence intervals, p-values, and hypothesis testing. The course had a lecture format and concentrated on problem solving techniques.

Computer Applications

Texts: Handouts and Applications Notes

This course taught beginning-to-advanced lessons on word processing, statistical analysis, spreadsheet, computer programming, and database management. The programs used during the workshop were WordPerfect, SAS, Quattro, Dbase IV, and WATFOR77. Class time incorporated interactive learning with the computer and lecture. Lab time was used to complete assignments designed to enhance and deepen understanding of each software application.

Ethics Forums

Ethics forums provided students the chance to experience many issues facing scientists today. Forums were a discussion-based format in which a professor guided the students giving them the opportunity to contribute their individual input. Students were able to share their own ideas on issues as well as learn different viewpoints from others.

Research Professors

Each student participant is "matched" individually according to his or her area of interest to work with a University professor. The professor serves as a preceptor for the SSTP student research effort for approximately 25 hours each week during the eight week program. Over the past 36 years, a total of more than 2500 students have attended the eight-week program.

Professors often encourage students to devise "new" projects, particularly those of an investigative nature, and the laboratories contribute direct research expenses involved in the study and analysis. Some students assist specifically in the ongoing research of the lab and draw their SSTP project from the information gathered from this current research. Students become familiar with sophisticated laboratory equipment often available only at an active research facility. They acquire information pertaining to the professor's particular field or specialty, as well as to the interrelationship and interdependence of the sciences.

SSTP participants receive many benefits from being associated with outstanding University research scientists. These distinguished individuals provide stimulation and guidance in advanced studies in the various fields of science, and offer their friendship and tutelage to the students. A number of past participants have been included as co-authors in professional publications, and their results have been incorporated into scientific presentations. Often, the participants continue data analysis in their high schools, and submit papers or present oral summaries on their previous SSTP research. Many are successful in high school scientific competitions and at the state, national, and international level.

Lecturing Professors

Participants listened to lectures by noted professors and faculty of the University of Florida. These lectures covered a broad range of topics from tree physiology to how to run a nuclear power plant. The lectures exposed the participants to current topics in a college level environment.

Administration

- **President, University of Florida**

Dr. John V. Lombardi Lecturer

College of Agriculture

- **Agricultural Engineering**

Dr. Arthur A. Teixeira Bio Process Engineering Lab Host

- **Agronomy**

Dr. Jeffrey T. Baker Climate Change Effects on Plants Lab Host

Dr. Kenneth J. Boote Plant Physiology Lab Host

Dr. Raymond N. Gallaher Agronomy Lab Host

- **Entomology and Nematology**

Dr. Robert Heath Chemistry Lab Host

Prof. Albert Undeen Entomology and Nematology Lab Host

- **Food Science and Human Nutrition**

Dr. Susan S. Percival Human Nutrition Lab Host

- **Fruit Crops**

Dr. Norman F. Childers Circulatory System Lab Host

- **Microbiology and Cell Science**

Dr. Samuel R. Farrah Environmental Microbiology Lab Host

- **Office of Academic Programs**

Dr. Jimmy G. Cheek Lecturer

- **USDA, ARS, Insect Attractants**

Ms. Bernie Wojcik Insect Attractants Lecturer

Participating Faculty

College of Continuing Education, Division of

● **FL Ctr for Solid & Hazardous Waste Mgmt**

Dr. Paul E. Still Solid and Hazardous Waste Management Lab Host

College of Dentistry

- **Dental Biomaterials**

Dr. Kenneth J. Anusavice Dental Biomaterials Lab Host

Dr. Chiayi Shen Dental Biomaterials Lab Host

- Oral Biology

Dr. Arnold S. Bleiweis Oral Biology Lab Host

Dr. Jeanine Brady Lab Host

Dr. Jeff Hillman Medical Microbiology Lab Host

Dr. William P. McArthur Immunology Lab Host

College of Education

- **Foundations in Education**

Dr. Walter A. Busby Psychology Lecturer

College of Engineering

- Aerospace Engineering

CPT John Parker Lecturer

- **Chemical Engineering**

Dr. Seymour S. Block Biomass Conversion Lab Host, Lecturer

Dr. Dinesh O. Shah Surface Science/Biomedical Lab Host

- **Civil Engineering**

Dr. Ronald A. Cook Structural Engineering Lab Host

- Coastal and Oceanographic Engineering

Dr. Ashish J. Mehta Harbor Engineering Lab Host

Dr. Hsiang Wang Coastal Engineering Lab Host

● **Computer and Information Sciences**

Mr. Joseph N. Wilson Computer Vision and Visualization Lab Host

- **Electrical Engineering**

Dr. Keith L. Doty Machine Intelligence/Robotics Lab Host

Dr. Vladimir Rakov Electrical Engineering Lab Host

Dr. Martin A. Uman Electrical Engineering Lab Host

Mr. William A. Wagner Computer Engineering Lab Host

- **Environmental Engineering**

Dr. Eric R. Allen Air Pollution Lab Host

Dr. Mark T. Brown Wetlands and Ecology Lab Host

- **Industrial & Systems Engineering**

Mr. Thomas M. Kisko Robotics/Software Engineering Lab Host

● **Materials Science and Engineering**

Dr. Kevin S. Jones Semiconductor Materials Lab Host, Lecturer

Dr. Brij M. Moudgil Mineral Processing Lab Host

- **Mechanical Engineering**

Dr. Carl D. Crane Computer Graphics, Robotics Lab Host

Dr. D. Yogi Goswami	Solar Energy	Lab Host
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● Nuclear Engineering Sciences

Dr. G. Ron Dalton Reactor and Engineering Analysis Lab Host
 Mr. John Restrepo Lab Host
 Prof. James S. Tulenko Mobile Robot Navigation/Modeling Lab Host
 Dr. William G. Vernetson Trace Elements/Reactor Operation Lab Host, Lecturer

Florida Museum of Natural History

● Anthropology

Dr. William R. Maples Anthropology Lecturer

College of Forest Resources and Conservation

● Forestry

Mr. Larry Korhnak Hydrology, Water Quality, Limnol Lab Host
 Dr. Hans Riekerk Forest Hydrology Lab Host

College of General Studies

● Center for Biotechnology

Mrs. Janis N. Sherrard Lecturer

● Editorial

Dr. James M. Nehiley Lecturer

College of Health Related Professions

● Clinical & Health Psychology

Dr. Russell M. Bauer Neuropsychology/Memory Research Lab Host

● Communicative Disorders

Dr. Michael A. Crary Speech and Swallowing Disorders Lab Host

College of Liberal Arts and Sciences

● Anthropology

Dr. Brian M. Dutoit Lecturer

● Astronomy

Dr. William Joe Cooke Rocketry/Extraterrestrial Intelligence Lab Host, Lecturer
 Dr. Jaydeep Mukherjee Lecturer
 Dr. Alex G. Smith Optical Astronomy/Photography Lecturer

● Chemistry

Dr. Richard A. Yost Analytical Chemistry Lab Host

● Florida Museum of Natural Sciences

Mr. George H. Burgess, Jr. Ichthyology Lab Host

● History

Dr. Fred G. Gregory History Lecturer

● Mathematics

Dr. David C. Wilson Mathematics Lab Host

● Physics

Dr. Lucy Elizabeth Seiberling Surface Physics Lab Host
 Dr. Henri A. Van Rinsvelt Nuclear Physics Lecturer

● Psychology

Dr. Elizabeth Capaldi Psychology Lecturer
 Dr. Neil E. Rowland Biopsychology Lab Host

Participating Faculty

● Zoology

Dr. Louis J. Guillette, Jr. Reproductive Biology/Endocrine Lecturer

College of Medicine

● Anesthesiology

Dr. Gordon L. Gibby Anesthesiology Lab Host

Dr. Annette Pashayan Anesthesiology Lab Host

● Biochemistry and Molecular Biology

Dr. Robert J. Cohen Lower Organisms/Biochemistry Lab Host

Dr. Thomas W. O'Brien Biochemistry & Molecular Biology Lab Host

● Center for Biotechnology Research

Dr. Sheldon Marc Schuster Lecturer

● Community Health & Family Medicine

Dr. Ray E. Moseley Community Health & Family Med. Lecturer

● Community Health and Family Medicine

Dr. Lee A. Crandall Lecturer

● Medical Services

Dr. Stephen E. Borst Adrenergic Pharmacology of Aging Lab Host

● Medicine

Dr. James J. Cerda Medicine/Gastroenterology Lab Host

Dr. Jawahar L. Mehta Medicine Lab Host

Dr. Charles C. Tisher Medicine Lab Host

● Pediatrics

Dr. John Graham-Pole Pediatrics Lab Host

Dr. Josef Neu Nutritional Biochemistry Lab Host

Dr. Peter Reuman Infectious Diseases Lab Host

● Pharmacology & Therapeutics

Dr. Lal C. Garg Pharmacology & Therapeutics Lab Host

Dr. Edwin M. Meyer Pharmacology & Therapeutics Lab Host

● Physiology

Dr. Melvin J. Fregly Physiology Lab Host

● Surgery

Dr. Hal G. Bingham Surgery Lecturer

Dr. Leonard T. Yu Plastic Surgery Lab Host

College of Pharmacy

● Pharmacy Practice

Dr. Michael W. McKenzie Pharmacy Practice Lecturer

College of Veterinary Medicine

● Infectious Diseases

Dr. E. Paul Gibbs Virology Lab Host

Dr. Carlos Romero Virology Lab Host

● Small Animal Clinical Sciences

Dr. Don A. Samuelson Zinc and Eye Disease Lab Host

Friday, June 17, 1994	Dr. Elizabeth Capaldi Psychology CPT John Parker Aerospace Engineering	"Psychology of Eating: Why We Like What We Eat" "Leadership Ethics"
Monday, June 20, 1994	Dr. Louis J. Guillette, Jr. Zoology	"Reproductive Biology of the Alligator from Evolution to Current Events"
Wednesday, June 22, 1994	Mrs. Janis N. Sherrard Center for Biotechnology	"Biotechnology: What Is It and Why Should We Care?"
Friday, June 24, 1994	Dr. William Joe Cooke Astronomy Dr. Alex G. Smith Astronomy	"Warp 9? But Captain There Is No Such Thing" "Quasars: Fringes of the Universe"
Monday, June 27, 1994	Dr. Michael W. McKenzie Pharmacy Practice	"Pharmaceutical Care: What's In It for You?"
Wednesday, June 29, 1994	Dr. Walter A. Busby Foundations in Education	"Science of Love"
Friday, July 1, 1994	Dr. Lee A. Crandall Community Health and Family Medicine Dr. William R. Maples Anthropology	"Current Ethical Issues in Science and Medicine" "Dead People Do Tell Tales"
Wednesday, July 6, 1994	Dr. Mary McCaully Center for Application of Psychological Type Dr. Henri A. Van Rinsvelt Physics	"Myers-Briggs Type Indicator" "What's New in PIXE"
Monday, July 11, 1994	Dr. Fred G. Gregory History	"The Question of Science and Value"
Wednesday, July 13, 1994	Dr. Kevin S. Jones Materials Science and Engineering	"The Exciting World of Semiconductors"
Friday, July 15, 1994	Dr. Seymour S. Block Chemical Engineering Dr. William G. Vernetson Nuclear Engineering Sciences	"Benjamin Franklin as a Man and a Scientist" "How a Nuclear Power Plant Operates--Comparison with a Research Reactor"
Monday, July 18, 1994	Ms. Bernie Wojcik Dr. Robert K. Vander Meer Dr. Robert Shatters Dr. Carl Litzkow USDA, ARS, Insect Attractants	"Commitment to the Future: Careers in Science"
Wednesday, July 20, 1994	Dr. Hal G. Bingham Surgery	"Plastic Surgery"
Friday, July 22, 1994	Dr. Brian M. Dutoit Anthropology Dr. Ray E. Moseley Community Health & Family Medicine	"An Ecological Model for Studies of Africa" "Current Controversies in Medical Ethics"
Monday, July 25, 1994	Dr. James M. Nehiley Editorial	"The Role of Scientific Writing"
Wednesday, July 27, 1994	Dr. Jimmy G. Cheek Office of Academic Programs	"Oral Communication"
Friday, July 29, 1994	Mr. Omar Ahmad The Discovery Channel	"Virtual Reality and Interactive Television"
Monday, August 1, 1994	Dr. John V. Lombardi President, University of Florida	"Science of Computers"

Research Project Titles

- Akers, Michael T. Sandalwood High School, Duval County Dr. Richard A. Yost
Development and Use of an Auxiliary Frequency Synthesizer
- Amelio, Antonio L. Palm Bay High School, Brevard County Dr. Arthur A. Teixeira
The Effects of Pre-Irradiation on the Thermal Resistance of Bacterial Spores
- Augustin, Danelle Monsignor Edward Pace H.S., Dade County Dr. Josef Neu
Determination of Glutamine Synthetase Along the Crypt-Villus Axis of the Sprague-Dawley Rat Small Intestine
- Balasubramaniam, Balamurali Marjory Stoneman Douglas HS, Broward County Dr. Kenneth J. Anusavice
Fractal Analysis of LS₂ with and without Thermally Induced Microcracking
- Bidhendi, Pedram Mainland Senior High School, Volusia County Dr. Russell M. Bauer
An Investigation of Memory Loss Experienced by Alzheimer's Patients and the Normal Aging Population
- Boardman, Stephanie E. Melbourne High School, Brevard County Dr. Paul E. Still
The Isolation of Cellulose Decomposing Microorganisms for Use in Composting
- Brown, Angelina Ruth St. Petersburg High School, Pinellas County Dr. William Joe Cooke
Analytical Comparison of Results from an ASG Orbital Decay Mr. Allan Pither
Model to Radar Observations of the O.D.E.R.A.C.S. Spheres
- Bunker, Heather L. Palm Bay High School, Brevard County Dr. Arthur A. Teixeira
Aluminum Bioindicator Units for Biovalidation of Sterilization Processes
- Campbell, James Arthur Chaminade Madonna College Prep S, Dade County Dr. James J. Cerda
Effects of Pectin on Cholesterol
- Chang, Debbie Gainesville High School, Alachua County Prof. James S. Tulenko
Remodeling the Hardware Layout of the ANDROS Robot
- Chen, Clifford Y. St. Petersburg High School, Pinellas County Dr. Kevin S. Jones
The Effect of Amorphization on Vacancy Injection during Silicidation
- Chow, Philip C. Winter Park High School, Orange County Dr. Raymond N. Gallaher
Tillage and Nitrogen Requirements for Yield of Sweet Corn Double-Cropped after Lupine and Crimson Clover
- Cimmerer, Amy Lynne Spruce Creek Senior High School, Volusia County Dr. Neil E. Rowland
Effects of Bradykinin on Brain Activity
- Coleman, Jonathan David Mainland Senior High School, Volusia County Mr. Thomas M. Kisko
The Development of C++ Objects
- Cooper, Joy Caroline LaBelle High School, Hendry County Prof. Albert Undeen
Mosquito Host Range of the Nematode *Strelkovimermis spiculatus*
- Cross, Steven Michael Deltona High School, Volusia County Dr. Neil E. Rowland
Analysis of the Effect of an Appetite Suppressant on Serotonin in the Brain Tissue of Young Rats
- Cutler, Sarah Melissa St. Petersburg High School, Pinellas County Dr. Seymour S. Block
Determining the Inhibitory Effect of TiO₂ and UV Light on Algae
- Daniels, Amy Elizabeth Apalachicola High School, Franklin County Dr. Leonard T. Yu
Localization and Quantification of Silicone Gel Bleed from Breast Implants
- Decker, Kara Lynn St. Petersburg High School, Pinellas County Dr. Carlos Romero
Construction of Plasmids that Carry Genes for Positive Selection
- Demetrious, Amad A. Spruce Creek Senior High School, Volusia County Dr. Dagmara Mohuczy
Receptor Distribution in Cell Lines and Tissue Cultures

- Droller, Jessica N.** Western High School, Broward County Mr. Larry Korhnak
Benefits and Risks of Municipal Solid Waste Compost on a Forest System
- Edell, Eric J.** The Pingry School, New Jersey County Dr. Edwin M. Meyer
Binding Assay and Oocyte Electrophysiology Testing of Alzheimer's Drugs
- Elliott, Stephen C.** Spruce Creek Senior High School, Volusia County Dr. D. Yogi Goswami
Photocatalytic Detoxification of Water Containing *E. coli* and Organic Compounds
- Engel, Matthew Stuart** Paul D. Schreiber High School, New York County Dr. Kenneth J. Boote
An Investigation of the Efficiency of Carbon Transference in Germinating Seeds
- Euliano, James B.** Trinity Preparatory School, Seminole County Dr. Seymour S. Block
Effects of Oxidation and Reduction on *Staphylococcus aureus*
- Frey, Brendan Paul** Seabreeze Senior High School, Volusia County Dr. Lal C. Garg
Distribution in Cell Culture and Tissue Samples
- Graham, Latonya D.** Forest High School, Marion County Dr. Ashish J. Mehta
Sedimentation Transport Problems in Harbors and Ports
- Grumski, Michael G.** Wellington High School, Palm Beach County Dr. Chiayi Shen
The Effect of Indentors on Interface Bond Energy
- Gupta, Rishi** Ely High School, Broward County Dr. I. David Weiner
The Role of Nitric Oxide in B-Cell Proton Transport
- Haney, Mark Nicholas** Mainland Senior High School, Volusia County Dr. Richard A. Yost
Miniaturization of the Ion Trap Mass Spectrometer
- Hawkins, David E.** Spruce Creek Senior High School, Volusia County Dr. Jawahar L. Mehta
The Effects of Hypoxia and Reperfusion on Vascular Tone
- Hobgood, Cassandra D.** Pensacola High School, Escambia County Dr. William G. Vernetson
A Comparative Analysis of Heavy Metal Trace Elements in Cigarette Tobacco
- Hoelle, Robyn M.** Hillsborough High School, Hillsborough County . . Dr. Raymond N. Gallaher
Tillage and Nitrogen Requirements for Yield of Sweet Corn Double-Cropped after Rye and Hairy Vetch
- Holler, Stephanie Anne** St. Johns Country Day School, St. Johns County Dr. Mark T. Brown
The Effects of Fire on Various Ecosystems
- Holmes, Lee Malisa** Union County High School, Union County Dr. Marjorie A. White
Profile Study
- Huang, Ping-Shan Sarah** Gainesville High School, Alachua County Dr. Kenneth J. Boote
The Effects of Carbon Dioxide and Temperature on Peanut Plant Growth
- Hunt, Heather Jolene** Santa Fe High School, Alachua County Dr. Jeanine Brady
Assessment of Bacterial Inference of Group *B streptococcal* Colonization in Pregnant Women
- Ingleman, Kelly Brook** St. Petersburg High School, Pinellas County Dr. Peter Reuman
Evidence For/Against the Transmission of Resistant *Pseudomonas Aeruginosa* between Cystic Fibrosis Patients in a Health Care Center
- Kannan, Geoffrey Sumithran** St. Petersburg High School, Pinellas County Dr. Bruce Kone
Determination of the Molecular Mechanisms by which Interleukin - 1B Regulates Nitric Oxide Production
- Kasica, Amanda Meredith** St. Petersburg High School, Pinellas County Dr. Josef Neu
The Effect of Glutamine on Catabolism in Premature Infants
- Klein, Susan D.** St. Petersburg High School, Pinellas County Dr. Alfred S. Lewin
Site Specific Cleavage of mRNA by a Ribozyme

Research Project Titles

- Kolheffer, Kerwin Matthew Nova High School, Broward County Dr. Thomas W. O'Brien
The Expression and Purification of Mitoribosomal Protein L31
- Korabathina, Kalyani St. Petersburg High School, Pinellas County Dr. Samuel R. Farrah
Indigenous Bacteriophages Used as a Model for Added Phages during Sludge Treatment
- Laakmann, Adam David Ely High School, Broward County Dr. Carl D. Crane
Creating a Mark Ever Seven Centimeters on Autonomous Survey Vehicle Travels
- Lee, Joyce H. Ely High School, Broward County Dr. Seymour Block
Film Stability of a Mixed Sinfactant System
- Lee, Stella Eun St. Petersburg High School, Pinellas County Dr. Dinesh O. Shah
Enzymatic Esterification of Unstaturated Fatty Acids with Glycerol in Foams
- Leung, Jackson Chaminade Madonna College Prep S, Broward County Dr. Brij M. Moudgil
Effects of Operational Parameters on Phosphate Flotation
- Li, Michael C. Crystal River High School, Citrus County Dr. Vladimir Rakov
Electric Fields Produced by Triggered Lightning
- Lie, Roger Daniel St. Petersburg High School, Pinellas County Dr. Seymour S. Block
The Effect of Natural and Artificial Ultraviolet Light on the Toxicity of Titanium Dioxide toward Bacteria
- Liu, Lisa Mainland Senior High School, Volusia County Dr. Gordon L. Gibby
Availability of Medical Records and Electronic Record-Keeping
- Lunestad, Ferrin Dawn St. Augustine High School, St. Johns County Dr. Dinesh O. Shah
Use of Film Stability Tests on the Evaluation of Surfactants
- Ma, Henry Lig Boyd H. Anderson High School, Broward County Mr. John Restrepo
Controlling a Robot through Programming in C
- Markovitz, Erica Lyn Lake Mary High School, Seminole County Dr. Annette Pashayan
Relationship between Extracellular Glucose Concentration and Brain Cell Death
- Maywah, Andrew J. Boyd H. Anderson High School, Broward County Dr. Keith L. Doty
The Design and Construction of an Autonomous Mobile Robot
- McCort, Agnieszka D. Spruce Creek Senior High School, Volusia County Dr. John Graham-Pole
The Significance of the Creative Arts in the Healing Process
- McCorvie, Ryan L. Winter Park High School, Orange County Dr. G. Ron Dalton
A Comparison of the RSA and EL Gamal Public Key Cryptosystems
- Meadows, Angela Marie Community School of Naples, Collier County Dr. William P. McArthur
Characterization of the Amount of Anti-LPS (from *P. Intermedia* Antibody Present in Squirrel Monkey Serum
- Mixson, Daniel James Eau Gallie High School, Brevard County Dr. William G. Vernetson
The Determination and Comparison of Domestic and Aerosol Derived Elements
- Mullin, Thomas F. Nova High School, Broward County Dr. Ronald A. Cook
Testing Steel Siding Using Large Missile Test
- Nahata, Meena Taravella High School, Broward County Dr. Seymour S. Block
The Effect of Temperature and TiO₂ on Various Types of Bacteria
- Nelson, Wilfred L. Mainland Senior High School, Volusia County Dr. David C. Wilson
Graphical Representations of Fourier Contours
- Nguyen, Nancy N. Niceville Senior High School, Okaloosa County Dr. Melvin J. Fregly
Cold-Induced High Blood Pressure, Males vs Females

- Osterman, Summer Eden** Spruce Creek Senior High School, Volusia County Dr. Karen E. Koch
Sugar Modulated Gene Expression of Sucrose Synthase under Hypoxia
- Patel, Sonal M.** Lincoln Park Academy, St. Lucie County Mr. Larry Korhnak
Phosphorus Inputs and Outputs of Urban Marshes
- Prakasam, Vidya** American Senior High School, Dade County Dr. D. Yogi Goswami
The Use of Photocatalysis to Cure Sick Building Syndrome
- Reeves, James D.** St. Petersburg High School, Pinellas County Dr. Robert J. Cohen
A Quantitative Analysis of Serotonin and Dopamine in *Phycomyces*
- Roy, Partho** Hillsborough High School, Hillsborough County Dr. Seymour S. Block
Using Photocatalytic Oxidation of Titanium Dioxide to Exterminate *Escherichia coli* Bacteria
- Seekamp, Rebecca L.** Palm Bay High School, Brevard County Dr. Donald A. Samuelson
The Role of Melanin in Age-Related Macular Degeneration
- Serebrin, Benjamin Charles** Lakeland Senior High School, Polk County Mr. William A. Wagner
The Construction of an Object-Avoiding Robot
- Shah, Priti Bharat** Marjory Stoneman Douglas HS, Broward County Mr. Sydney Schofield
The Effects of Different Salinities on the Growth of Seagrass
- Shon, Seung-Uk** Paul D. Schreiber High School, New York County Dr. Lucy Elizabeth Seiberling
Design and Construction of a Thermoelectric Air Conditioner for Use in a Solar-Powered House
- Sims, Joshua Dierks** St. Petersburg High School, Pinellas County Dr. Kenneth J. Anusavice
Influence of Self-Glazing on the Controlled Flaw Flexure Strength of Dental Ceramics
- Smith, Shaun Wells** Sandalwood High School, Duval County Dr. Robert Heath
Identification of Novel Attractants for the Caribbean Fruit Fly
- Son, Sodany Suong** St. Petersburg High School, Pinellas County Dr. Dinesh O. Shah
Enzymatic Esterification of Glycerol with Various Saturated Fatty Acids in Foam
- Spence, Cynthia Lee** DeSoto County Middle School, Volusia County Dr. Eric R. Allen
Hydrocarbon Emissions from Southern Pine Trees and Their Potential Role on Rural Air Quality
- Trimarco, James A.** St. Petersburg High School, Pinellas County Dr. Samuel R. Farrah
Development of a New Selective Media for *Zoogloea* Bacteria
- Truitt, Cynthia Sue** St. Augustine High School, St. Johns County Dr. Raymond N. Gallaher
Tillage and N₂ Requirements for Yield of Sweet Corn Double-Cropped after Velvetbean and Crimson Clover
- Van der Veen, Tanja Kay** St. Petersburg High School, Pinellas County Dr. Russell M. Bauer
A Study of the Differences in Memory Loss Experienced by Alzheimer's Patients and the Normal Aging Population
- Viserta-Galinis, Joanna N.** Cornelia Connelly High School, California County Dr. Mark T. Brown
The Loss of Wetlands in Developing Landscapes
- Wein, David A.** St. Petersburg High School, Pinellas County Dr. Eric R. Allen
The Control of Nitrogen Oxides in Simulated Jet Engine Exhaust Gases
- Westin, Jason Robert** Gainesville High School, Alachua County Dr. Brij M. Moudgil
Effects of Operational Parameters on Phosphate Flotation Performance
- Wu, Emily Y.** Atlantic High School, Palm Beach County Dr. Alex E.S. Green
The Comparison of Different Alternative Fuels
- Yi, David Chang** Lake Howell High School, Seminole County Dr. Michael A. Crary
Vocal Tract Stability in Spasmodic Dysphonia

Administration

Dr. Betty Abbott is the Director of the Florida Foundation for Future Scientists. In 1988, Dr. Abbott was honored by the Florida Legislature with a resolution commending her for her selection as Florida Educator of the Year by the Hillsborough Museum of Science and Industry. She was twice nominated for the Florida Women's Hall of Fame. She is a Founding Member and past President of the Florida Advisory Council on Science Education, and was Science Educator of the Year for the Florida Association of Science Teachers. Dr. Abbott earned a B.S. with honors from the University of Louisville, Kentucky; an M.S.E. from the University of Central Arkansas; an M.S. from the University of Alabama; and a Ph.D. from the University of Florida. Her major fields of study and research are in geology and physical geography.

Dr. Robert B. Gaither has brought national and international acclaim to the University of Florida as head of the Department of Mechanical Engineering for more than 25 years. After receiving a B.S. in Mechanical Engineering from the Alabama Polytechnic Institute, Dr. Gaither spent four years at sea as a naval executive officer and explosives expert. He received graduate degrees from Auburn University and the University of Illinois. As past President of the American Society of Mechanical Engineers, he has represented 200,000 members of the Society at national levels, and has received twelve citations for exemplary service. Dr. Gaither has retained his position as Chairman of the Board of Directors for the Florida Foundation for Future Scientists for 20 years.

Ms. Joan Herrera holds a Master of Education degree in Science Education from the University of Florida and currently a doctoral candidate in the Zoology Department. She is an Office of Naval Research National Defense Science and Engineering Fellow. Ms. Herrera has worked at the Department of Natural Resources Marine Lab in St. Petersburg, at the Department of Environmental Regulation in Jacksonville, at the Mayport Marine Science Education Center, and as a Marine Biology and Physical Science Teacher in both public and private schools. At the University of Florida, she has been a laboratory instructor in Invertebrate Zoology and acts as a teaching assistant and dive master for several undergraduate and graduate courses. She also works as a reviewer of college level texts for Cornell University Press and West Educational Publishing.

Ms. Sylvia S. Ingram, Residential Coordinator, has been on the Board of Directors of the Florida Foundation for Future Scientists for more than ten years, and is currently the Scholarship Chairman for the state Science and Engineering Fair. She is also the former Fair Director for the Jackson County Science Fair and the Lakeland Regional Science Fair. She has been a teacher of all levels of Biology (including Advanced Placement, Anatomy and Physiology) in Florida for 28 years. In 1985, she received the American Heart Association Teacher of the Year Award. She has an A.A. degree from Chipola Junior College, a B.A. in Biology from Memphis State University, and an M.S. in Education from Troy State University. Ms. Ingram, has a daughter and two sons.

A native of Toronto, Canada, **Mr. Scott Kowalski** was the instructor for the Introduction to Statistics class this summer. Scott earned his B.S. in Statistics at the University of Florida in 1993 and is currently a student of the Graduate School of Statistics at UF. He recently returned from a trip to Jamaica where he spent his honeymoon. Scott has lived in Gainesville for four years while studying at the University, and he enjoys spending his time by playing golf and tennis.

Mr. David E. Murray, Research Certification Coordinator and FAIS Earth and Space Science Module Instructor, has served on the FFFS Board of Directors since 1976 and Chairman of Scientific Review Committee since 1984 when he directed the State Science and Engineering Fair. He is a member of the JSEHS selection committee and has taught in Florida for 25 years, five of which he was Science Resource/Supervisor for Brevard County. Mr. Murray earned his B.A. at the University of South Carolina in Elementary Education and his Master of Education at Florida Atlantic University in Administration and Supervision. His interests include fine arts, fishing, and woodcraft.

Ms. Deborah E. Paulin, Coordinator, Educational and Training Programs, received a bachelor's degree in anthropology from the University of Florida. She has pursued a career in Personnel Management and Human Resource Development that has provided her with experience in both state government and the private sector. Prior to her arrival at the FFFS, she was Director of Educational Programs and Consulting Services for the Center for Applications of Psychological Type. She consults with various groups, including gifted classes, in applications of the Myers-Briggs Type Indicator, one of the most widely used personality assessment tools. She has two sons who live in Gainesville. She enjoys writing love songs, camping and hiking, and studying herb lore.

Mr. Scott Allen Tucker was born in Dunedin, FL, and spent most of his childhood in the little town of Dade City. He received his A.A. from Pasco Hernando Community College in 1991, and is currently seeking a B.S. in Computer Engineering. Scott is presently working in the CIS Department as a consultant and as staff for network support. His interests include his antique '65 Mustang, bonsai, the Internet, hiking, and watching low budget movies.

Mrs. Jacqueline H. Zucali, Biotechnology Instructor, has been a Biology teacher at Eastside High School, in Gainesville, for twelve years. She is the department chairperson and the sponsor of the Florida Junior Academy of Science. Mrs. Zucali received her BS in Biology and Chemistry at Kent State and has done graduate work at a number of universities. She has received many honors, including Teacher of the Year at the Junior, Science and Engineering Symposium in 1988.

Staff

Mr. Michael S. Anthony, Senior Computer Support Specialist, is originally from Ohio, and has lived in Gainesville and worked for the FFFS since 1990. Mike is married and enjoys spending time at home, reading, listening to music, riding bicycles, playing volleyball, skeet shooting, and playing darts in tournaments and leagues.

Mrs. Catherine L. Gentry, Senior Fiscal Assistant, is a native of Kentucky and has lived in Gainesville for four years. She earned her A.A. degree in Business from the University of Kentucky. Mrs. Gentry is married and is also the mother of two girls who are 7 and 8 years old. She intends to continue her formal education in Business Administration. She enjoys fishing, gardening, cross-stitching, and karate.

Miss LaQuinsia Jackson, a high school junior, is working this summer with the FFFS as a Fiscal Clerk. She has recently relocated to Gainesville from Chiefland. LaQuinsia enjoys playing basketball, softball and running.

Mr. Roberto Lizama, a student at the University of Florida, and a Pike Fraternity member was a past summer program participant and has worked for the FFFS on and off for two years.

Mrs. Bonnie M. Pelletier, Senior Secretary, has lived in the Gainesville area for five years. Mrs. Pelletier enjoys spending time with her family and friends. She is very active in her church serving as Secretary/Treasurer for the Youth Group, announces church events in the local newspapers, and delivering flowers to church members who are in the hospital. She spends her spare time gardening and raising cattle.

Ms. Christine Michelle Steinway, a participant in the 33rd SSTP, is a junior at the University of Florida where she is an Environmental Engineering major. She graduated from Lakewood Senior High School in St. Petersburg. At UF Christy serves as the National Communication Coordinator for the Inter-Residence Hall Association and is the Philanthropy chair of Rotaract. She is an assistant director for Gator Connection and is active with the Lutheran Student Movement. Christy enjoys camping, canoeing, and backpacking.

 Residential Staff

Laura Christina Becht is a junior at Trinity College in Washington, DC, and was a participant at the 33rd SSTP. She graduated as a distinguished scholar from P.K. Yonge Developmental Research School in Gainesville and is now planning to dual major in Environmental Science and Biology. Laura was a Westinghouse Semi-Finalist in 1992, a speaker at the JASON Colloquium and at the 1992 Junior Science, Engineering and Humanities Symposium. She received the Clare Boothe Luce Scholarship, the Bausch and Lomb Honorary Science Award, and the Regional PRIDE award. Presently, Laura enjoys volunteering at the National Museum of Natural History, St Annes orphanage, and the campus ministry choir. Her free time is filled with crew (rowing), interning at the school computer center, playing the clarinet, and reading science fiction/fantasy novels.

Keith P. Chastain, valedictorian of his class at Union County High School, is currently a Nuclear Engineering major at the University of Florida. He was a participant in the 29th SSTP and a speaker at the 25th Junior Science, Engineering and Humanities Symposium and the Florida Junior Academy of Science. Keith is an active member of the College Republicans and enjoys discussing politics, playing chess, and reading science fiction and mystery novels.

Guarionex Joel De Castro, a participant of the 34th SSTP, is a sophomore at Harvard University, and plans on majoring in either neuroscience or psychology. He graduated valedictorian from Key West High School in Key West. Joel participated in the 30th Annual Junior Science, Engineering and Humanities Symposium, was a National Hispanic Scholar Finalist and received the Robert C. Byrd Scholarship Award. In college, Joel is a counselor in the Inner-City Outreach and Cambridge After-School Curriculum programs, and participated in HEMIS (Hispanics in Engineering, Medicine, and Informational Sciences). In his free time he does research with a graduate student in the Psychology Department at Harvard, enjoys reading short stories, playing classical piano, writing, and photography.

Hector I. Gomez is a member of the 33rd SSTP. He attended Miami Sr. High School where he was an active member of the National Beta Club, National Honor Society, Science Honor Society, Spanish Honor Society, and Mu Alpha Theta. He aspires to obtain a Bachelor's degree in Civil Engineering and a Masters in Business Administration from the University of Florida after having attended Miami-Dade Community College. Hector has spent time working with homeless people and children and as a math tutor for troubled students. He has also been selected to two Honors Seminars in Economics and Leadership offered at the University of South Florida for the past two years. He enjoys spending time with friends, as well as dancing and playing sports, but most of all he truly loves Star Wars.

Sandra M. Jara is a junior at the University of Central Florida majoring in Molecular Microbiology. She graduated salutatorian from Lake Howell High School in Casselberry, and was a participant of the 33rd SSTP and is presently in the Honors Program at UCF. She has made the President's and Dean's Lists and is chairperson of Projects and Functions in the Pre-Med society. She is also a member of the Hispanic American Student Association and the Environmental Society. She enjoys working as a volunteer at the Central Florida Blood Bank and the clinic for the Coalition of the Homeless in Orlando, playing volleyball, tennis and ping pong, spending time with friends, and reading interesting books.

Tina Patel joins us this year from Coral Springs. A participant of the 30th SSTP, she graduated valedictorian from Ely High School in Pompano Beach, and just recently graduated Magna Cum Laude from Vanderbilt University. Tina triple majored in Computer Science, Math, and Philosophy. She is planning on attending Duke University Law School in the fall. In her spare time, Tina enjoys playing tennis and racquetball.

Thomas Edward Reed, III, is from Tampa where he graduated from Gaither High School. A 33rd SSTP participant, he was also a Tribune Honors Student for being in the top 3% of seniors from Hillsborough County. Tom now attends the University of Florida where he is a junior Mechanical Engineering major. He has been active in archery and Moo Duk Kwan (martial arts), and he marches in the Gator Marching Band's Florida Drum Line. Tom has studied bats and is actively concerned with their conservation -- including volunteer work at the Lube Foundation (a captive breeding facility for Pacific Island Flying Foxes).

Leigh Tucker was a participant of the 1990 FLS. Presently, she is a junior seeking a B.A. in Russian Language and Government at the University of Notre Dame. She graduated valedictorian from Clermont High where she was President of the student body, Editor-in-chief of her yearbook, vice-president of the National Honor Society, and a four-sport letterman. She is also very active in Student Government at Notre Dame as commissioner of several different committees, and member of the Legal committee and Freshman Orientation. She spends her spare time participating in Big Sister Activities, studying the Russian Language, and painting.

Melanie Elaine Woodham was an Outstanding Speaker in the 32nd SSTP and is presently a senior at the University of Alabama in Tuscaloosa. She graduated valedictorian of Dunnellon High School in 1991 where she was an Outstanding Chemistry and Biology Student. At present she is chairperson for the emotionally and physically handicap support group-Circle K, member of the American Chemical Society, the American Institute for Chemical Engineers, and a volunteer at nursing homes and juvenile detention centers. Melanie enjoys a variety of sports including volleyball, flag football, and jogging, and enjoys playing her flute.

 SSTP Participants

Michael Akers, a student from Sandalwood Senior High School, is fascinated by the field of Computer Sciences. As a result, Michael has participated in the Northeast Kiwanis' Regional Science Fair for the past four years, winning second place in 1993. This summer he worked under the supervision of Dr. Richard A. Yost on a research project entitled *Development and Use of an Auxiliary Frequency Synthesizer*.

Antonio Amelio was the Outstanding Research Student of the Year while in the seventh grade, and ever since that time he has participated in all levels of science fair competitions from local to state. Antonio also enjoys playing soccer and running track for Palm Bay High School. Antonio worked under the supervision of Dr. Arthur A. Teixeira on a project entitled *The Effects of Pre-Irradiation on the Thermal Resistance of Bacterial Spores* this summer.

Danelle Augustin, from Miami Shores, is a student at Monsignor Edward Pace High School. At school, she is a member of the cheerleading squad, the school newspaper, the Environmental Club, and the Key Club. Upon graduating from high school, Danelle would like to pursue her interest in embryology and obstetrics by eventually attending medical school. This summer, Danelle worked under the supervision of Dr. Josef Neu on a project entitled *Determination of Glutamine Synthetase Along the Crypt-Villus Axis of the Sprague-Dawley Rat Small Intestine*.

As a student at Marjory Stoneman Douglas High School, **Balamurali Balasubramaniam** has spent over 200 hours as a volunteer for a local hospital. He is very active in the Model United Nations and in the National Honor Society. Murali is also member of a band from which he received the highest honor with the Director's Award. Balamurali spent his summer working with Dr. Kenneth J. Anusavice on his project, *Fractal Analysis of LS2 with and without Thermally Induced Microcracking*.

Biographies

Pedram Bidhendi is a student at Mainland High School where he has participated in several school plays, the Academic Team, Science Fair, and the tennis and cross country teams. Pedram hopes to someday become a physician. **Dr. Russell M. Bauer** provided Pedram with the exciting experience of working with *An Investigation of Memory Loss Experienced by Alzheimer's Patients and the Normal Aging Population*.

Hailing from Indialantic, Florida, **Stephanie Boardman** plans to perform cancer research as her future career. She is an active member of the National Beta Club, the National Honor Society, and Melbourne High's Academic Team. This summer Stephanie worked with **Dr. Paul E. Still** on a project entitled *The Isolation of Cellulose Decomposing Microorganisms for Use in Composting*.

Angelina Brown is an International Baccalaureate student at St. Petersburg High School. She is a Presidential Academic Fitness Award recipient, a member of the National Honor Society, Mu Alpha Theta, the French Honor Society, and the International Thespian Honor Society. Angie worked under the supervision of **Dr. William Joe Cooke** on a project entitled *Analytical Comparison of Results from an ASG Orbital Decay Model to Radar Observations of the O.D.E.R.A.C.S. Spheres*.

Heather Bunker, from Palm Bay Sr. High School, has been part of the "Odyssey of the Mind" competition for the past four years and a member of the Future Problem Solving team. She is also an active member of the Algebra Team, the Chemistry Team, and the Latin Certamen Team. Heather spent her summer working with **Dr. Arthur A. Teixeira** on a project entitled *Aluminum Bioindicator Units for Biovalidation of Sterilization Processes*.

James A. Campbell currently attends Chaminade-Madonna College Preparatory School where he is a rising senior and active in National Honor Society and Mu Alpha Theta. James enjoys playing both tennis and golf and is an experienced black belt in Tae Kwon Do. As a result of his interest in biology and genetics, James hopes to attend college and then medical school. James spent his summer at the 1994 SSTP working under the supervision of **Dr. James J. Cerda** on research entitled *Effects of Pectin on Cholesterol*.

A rising senior, **Debbie Chang** is a student at Gainesville High School in Gainesville, Florida. Her school activities include membership in Mu Alpha Theta, the Key Club, Spanish Honor Society, National Honor Society, and Spanish Club. Debbie also participates in her school's Brain Bowl competitions. After graduation, Debbie plans to attend college, but is undecided as to what her major might be. At the 36th SSTP, Debbie had the opportunity to work under **Prof. James S. Tulenko** on a project entitled *Remodeling the Hardware Layout of the ANDROS Robot*.

Clifford Y. Chen comes to the 36th SSTP from Seminole where he attends St. Petersburg High School. Currently a senior, Clifford is active in the Pinellas Youth Symphony and enjoys playing the piano and violin. He serves as secretary of the YMCA Youth in Government and is part of the swim team, Academic Team, Key Club, and Mu Alpha Theta. Twice he has received first place in the regional science fair and 4th place in the state science fair. Not a stranger to the FFFS, Clifford was part of the FAIS program. Clifford spent his summer working with **Dr. Kevin S. Jones** on a project entitled *The Effect of Amorphization on Vacancy Injection during Silicidation*.

Philip C. Chow comes to the 1994 SSTP from Orlando where he attends Winter Park High School. At Winter Park, Philip is an active member of the Spanish Club, Math Honor Society, and the school band. Philip spends most of his free time involved in the marching band, with which he has been awarded numerous awards including straight superiors during district competitions. Philip spent the summer working under **Dr. Raymond N. Gallaher** on research entitled *Tillage and Nitrogen Requirements for Yield of Sweet Corn Double-Cropped after Lupine and Crimson Clover*.

Amy L. Cimmerer is a student at Spruce Creek High School in Ormond Beach where she is active in many organizations, including the swim team and Beta Club. Amy has been involved in her school's science fairs and has been an intern for the Volusia County Medical Society. She has also received several awards for her extracurricular activities, including the Laboratory Excellence Award, the Outstanding Achievement in Business Award, and the National Science Merit Award. Amy had the opportunity to work under **Dr. Neil E. Rowland** at the 36th SSTP on research entitled *Effects of Bradykinin on Brain Activity*.

Jonathan D. Coleman is currently a student at Mainland High School in Daytona Beach and is interested in computer science and applications involving computer and electrical engineering. While at Mainland High School, Jonathan has received several SECME awards, the Superintendent's Scholar Award, and has been recognized by Who's Who Among American High School Students. Beside playing basketball for his school, Jonathan has also been involved in the Computer Club, National Honor Society, Mu Alpha Theta, and the track team. In the future Jonathan plans to attend college and receive a B.S. in computer engineering. This summer he applied his knowledge and skills while working under the supervision of **Mr. Thomas M. Kisko** on his project entitled *The Development of C++ Objects*.

Joy C. Cooper currently attends LaBelle High School in LaBelle, Florida, where she is a rising senior. Upon graduation, Joy would like to apply her research skills as a pediatric oncologist. Joy participated in the 1st and 2nd Annual FAIS programs and has attended the JSEHS symposium. In her spare time, Joy volunteers at the Lee Memorial Hospital. At school, Joy has been involved in the volleyball, basketball, and golf teams. She has also been a member of the Academic Team and National Honor Society and has participated in the Edison Regional Science Fair. Joy spent the summer working with **Prof. Albert Undeen** on her research project entitled *Mosquito Host Range of the Nematode *Strelkovimermis spiculatus**.

Stephen Cross is a senior from Deltona High School in Deltona, Florida. Upon graduation he would like to pursue a PhD in aerospace or aeronautical engineering. At Deltona High, Stephen is a member of the Student Council, the National Honor Society, German Club, Academic Team, Mu Alpha Theta, JETS TEAMS, and the German National Honor Society. During his spare time, Stephen has participated and is still involved in various chamber orchestras including the all-county orchestra. His talent with the violin is prominent, as demonstrated by his place as choir violinist at his school. Stephen had the pleasure of working with **Dr. Neil E. Rowland** on research entitled *Analysis of the Effect of an Appetite Suppressant on Serotonin in the Brain Tissue of Young Rats*.

Sarah M. Cutler attends St. Petersburg High School in Seminole where she is a rising senior. Sarah plans to pursue a degree in biomedical engineering upon her graduation. Sarah is active in her high school, as shown by her involvement in the French and National Honor Societies, Mu Alpha Theta, French Club, Multi-Cultural Club, the Renaissance Festival, and the All-Children's Hospital Guild. Among her many accolades, Sarah received the "Outstanding Science Student" Awards from the Center for Advanced Technologies at Lakewood High School. Sarah worked under the direction of **Dr. Seymour S. Block** this summer and researched a project entitled *Determining the Inhibitory Effect of TiO₂ and UV Light on Algae*.

Amy E. Daniels is a senior at Apalachicola High School. She would like to attend college after graduating from high school in order to pursue her interest in medicine. At Apalachicola High, Amy has been a member of the Spanish Club, Student Council, Mu Alpha Theta, and Beta Club. Amy's interest in dancing has been supported by her involvement in cheerleading and by private lessons. Among her many awards, Amy has received the National Leadership Merit Award and has been recognized by the HOBY Foundation as "The Most Outstanding AHS Sophomore." This summer, Amy worked with **Dr. Leonard T. Yu** in her laboratory on a research project entitled *Localization and Quantification of Silicone Gel Bleed from Breast Implants*.

Kara L. Decker lives in North Redington Beach where she attends St. Petersburg High School. Kara enjoys the sciences greatly and hopes to pursue her specific interests in genetics and anatomy by becoming a physical therapist. Kara has been involved in the Pinellas County Science Fair and has received the Science Pride Award. At school, Kara is involved in the French and National Honor Societies, the French Club, SADD, and has been a member of the Varsity swimming team for the past three years. This summer she worked with Dr. Carlos Romero on the project entitled *Construction of Plasmids that Carry Genes for Positive Selection*.

Amad A. Demetrious attends Spruce Creek High School in Ormond Beach where he is involved in the Beta and Spanish Clubs and writes for the Accipiter, his school's literary magazine. Amad has received several awards from school and county science fairs, along with awards from the Volusia County Foreign Language Competition and the State Spanish Conference. This summer he worked on a project under the guidance of Dr. Dagmara Mohuczy and entitled *Receptor Distribution in Cell Lines and Tissue Cultures*.

Jessica N. Droller is a rising senior from Western High School in Ft. Lauderdale. At Western, Jessica is an active member of the swim team, National Honor Society, Student Government, and Mu Alpha Theta. She has received the Community Service Award along with dual and triple awards for participation in sports and clubs. Although she is somewhat unsure of her future plans, Jessica does know that her interests lie in the sciences. Jessica spent her summer under the guidance of Mr. Larry Korhnak working on *Benefits and Risks of Municipal Solid Waste Compost on a Forest System*.

Eric J. Edell comes to the 36th SSTP from New Vernon, New Jersey, where he attends the Pingry School. Among his many accomplishments and activities, Eric is member of his school's Varsity wrestling team and JV track and field team and also serves as an emergency medical technician for the New Vernon Ambulance Squad. Eric is the co-founder of the aptly named P.I.G. (Pingry Investment Group) and has spent some of his summers caddying for the Spring Brook Country Club. Eric hopes to pursue his interest in applied genetic medicine after graduation from high school by attending college and following a pre-med track. This summer he worked under the supervision of Dr. Edwin M. Meyer on his project entitled *Binding Assay and Oocyte Electrophysiology Testing of Alzheimer's Drugs*.

Stephen C. Elliott is from Ormond Beach where he attends Spruce Creek High School. He is a member of the National Honor Society and the Beta and Spanish Clubs. Stephen received the Superintendent's Elite Scholar Award in 1993 and has received several awards from school and county science fairs. Stephen has also been recognized by Who's Who Among American High School Students and has received the United States Achievement Academy 1993 National Award. Stephen had the pleasure of working under Dr. D. Yogi Goswami on research entitled *Photocatalytic Detoxification of Water Containing E. coli and Organic Compounds*.

Matthew S. Engel had the opportunity to work under the guidance of Dr. Kenneth J. Boote on his research entitled *An Investigation of the Efficiency of Carbon Transference in Germinating Seeds*. All the way from Port Washington, New York, Matt attends Paul D. Schreiber High School where he is a member of the JV baseball team, the Port Washington Youth Council, and Student Government for which he has served as President for the last three years. Matt was selected as one of ten students to participate in the Science Research Program at Schreiber High. He was also selected as the Long Island Spokesman of Masada Alumni and is a member of two academic teams in his school. He plans to pursue his interest in science by following in the footsteps of his brother and attending Harvard University where he would like to receive a BS in a science field.

James B. Euliano worked this summer under the direction of Dr. Seymour S. Block on a project entitled *Effects of Oxidation and Reduction on Staphylococcus aureus*. He attends Trinity Preparatory School in Winter Springs. James is an active member of the Men's Service League and has served as Bonfire Chairman for the past two years. He has received second place at the Latin V District Forum and has been recognized by the Duke University TIP. In the future, James would like to attend college possibly followed by medical school.

Brendan P. Frey attends Seabreeze High School where he will graduate in 1995. Upon his graduation, he would like to pursue a career in computer science. Brendan has won several awards from spelling bees and science and social study fairs. Brendan has participated in the computer club, the academic team, track and field, and in Model United Nations. He also volunteers at a local religious school and has served as peer tutor for the past several years. This summer, Brendan worked under the direction of Dr. Lal C. Garg on her research entitled *Distribution in Cell Culture and Tissue Samples*.

Latonya D. Graham is a rising senior attending Forest High School. Latonya is active in her high school, as demonstrated by her membership in the National Honor Society, the Health Occupation Students of America, the Jr. Civitan Service Club, and the NAACP Youth Council. In her free time, Latonya likes to play basketball for the YMCA. In the future, Latonya would like to follow her adoration of children and become a pediatrician. Latonya worked under the guidance of Dr. Ashish J. Mehta on her research entitled *Sedimentation Transport Problems in Harbors and Ports*.

Michael G. Grumski attends Wellington Community High School where he is a member of the Debate Team, the National Honor Society, and the JV soccer team. During his free time, Michael works as a tennis instructor for the local US Tennis Association. He has received several awards in forensics, including Best Speaker Student Congress and fourth place in a local team debate. He has also been involved in school and regional science fairs from which he has received several awards. Michael had the pleasure of working under the guidance of Dr. Chiayi Shen on a research project entitled *The Effect of Indentors on Interface Bond Energy*.

Rishi Gupta attends Ely High School where he has participated in numerous mathematics competitions such as the Florida Math League and the Continental Math League. He has also been actively involved in his school's science fairs from which he has received second and third place awards for the past three years. He is also a member of the National Honor Society, the Ely High School Environmental Club, and the Spanish Club. Rishi has participated in the regional Chemathon and JETS TEAMS Competition. Along with his involvement in school, Rishi has performed over 200 hours of community service in Broward County Public Libraries and the Memorial Manor Nursing Home. Rishi hopes to pursue a PhD in the medical sciences. This summer he worked under the guidance of Dr. I. David Weiner on his research entitled *The Role of Nitric Oxide in B-Cell Proton Transport*.

Mark N. Haney would like to pursue his interest in computer vision and visualization by making computer sciences his major in college upon graduating from Mainland High School in 1995. His activities at school include membership in the National Honor Society, Key and French Clubs, the Academic Team, and the Computer Club. During his free time, Mark enjoys water sports, and to this end he founded the Water Ski Club at Mainland High. Among his many accolades, Mark has received the Superintendent's Scholar Award, first place at the Volusia County Social Studies Fair, and third place at the Tomoka Regional Science Fair. While at the 36th SSTP, Mark worked with Dr. Richard A. Yost on his research project *Miniaturization of the Ion Trap Mass Spectrometer*.

David E. Hawkins lives in Volusia county and attends Spruce Creek High School from which he will graduate in 1995. David is an active member in the National Honor Society and Beta Club while being a participant in the International Baccalaureate Program. He has received several awards in science including first place for biochemistry in the Tomoka Regional Science and Engineering Fair and the Mensa Award for Scientific Achievement. David had the opportunity to conduct research in the laboratory of Dr. Jawahar L. Mehta entitled *The Effects of Hypoxia and Reperfusion on Vascular Tone*.

Biographies

Cassandra D. Hobgood is a rising senior at Pensacola Catholic High School. Her activities at school include membership in the JV softball team and the swim team. She also participates in the National Honor Society, Key and Chase Clubs, and the Philosophy Club. Cassandra greatly enjoys acting, her credits including "Annie" and "Joseph & the Amazing Technicolor Dreamcoat." Cassandra's future goals include attending college and pursuing a doctorate in either chemistry or physics. Cassandra worked under the supervision of **Dr. William G. Vernetson** on a research project titled *A Comparative Analysis of Heavy Metal Trace Elements in Cigarette Tobacco*.

Robyn M. Hoelle attends Hillsborough High School in Hillsborough county where, upon graduation, she would like to pursue a career in botany. Robyn was a participant in her district's science fair where she received third place for a project exploring heat distribution in rocks. Her awards include being invited to the 1993 science symposium at UF and being named outstanding sophomore of the Hillsborough Vocal Music Association of 1993. Among her many outstanding accomplishments, Robyn is a published author and has been awarded a green sash in Kung Fu Kun Toa. Robyn has also completed over 600 hours of community service in the past four years and has served as lector for a local church. Robyn's research, which she completed under the direction of **Dr. Raymond N. Gallaher**, was entitled *Tillage and Nitrogen Requirements for Yield of Sweet Corn Double-Cropped after Rye and Hairy Vetch*.

Stephanie A. Holler is a resident of Switzerland -- Florida, that is. She attends St. John's Country Day School where she is actively involved with the school newspaper, Cum Laude Society, Latin Club, and the Mock United Nations. Stephanie won second place in a writing contest for *Afterthought Magazine* and placed second in her district's Latin Forum for Advanced Vocabulary. She has also won several awards at the district level for her skill in playing the piano. After graduating from St. John's, Stephanie would like to attend college and eventually acquire a PhD in marine biology. Stephanie worked under the guidance of **Dr. Mark T. Brown** and did research entitled *The Effects of Fire on Various Ecosystems*.

Lee M. Holmes is a rising senior at Union County High School in Lake Butler. Although Lee is not certain as to her future goals, her interests include biochemistry and the medical sciences. Her activities at Union County High include membership in the school band, Beta and Math Clubs, and National Honor Society. Lee has received many awards for her endeavors, including a superior rating for a xylophone solo, the McKnight Achiever Award, the Challenger Award, and several science fair awards at the school and county levels. This summer she worked on a project under the supervision of **Dr. Marjorie A. White** entitled *Profile Study*.

Ping-Shan Sarah Huang attends Gainesville High School in Gainesville. At school, Sarah participates in the Mu Alpha Theta Club, National Honor Society, International and FJAS Clubs, and the Science Club. Sarah has been awarded Most Outstanding Student awards for math and science. She also received a third place trophy in a regional math competition and has been identified by Who's Who Among American High School Students. At the 36th SSTP, Sarah had the pleasure of working under **Dr. Kenneth J. Boote** on research entitled *The Effects of Carbon Dioxide and Temperature on Peanut Plant Growth*.

Heather J. Hunt would like to pursue studies in biology upon her graduation from Santa Fe High School in Alachua County. At Santa Fe High, Heather is a member of the Interact and Beta Clubs, the Spanish Honor Society, and has participated in the JETS TEAMS Competition. Heather has received several science awards, including third place for a project involving microbiology in the regional science fair. In her free time, Heather participates in a local church youth group. Heather worked with **Dr. Jeanine Brady** on her research project entitled *Assessment of Bacterial Inference of Group B streptococcal Colonization in Pregnant Women*.

Kelly B. Ingleman is currently a senior in St. Petersburg High School in Pinellas County. At school Kelly makes time for membership in the Mu Alpha Theta Math Honor Society, the Spanish Club, and the Rojan Service Club. Kelly also serves as councilman and historian for her school's Student Council. Her future goals include attending college and pursuing a degree in engineering. Kelly did research this summer under the supervision of **Dr. Peter Reuman** entitled *Evidence For/Against the Transmission of Resistant Pseudomonas Aeruginosa between Cystic Fibrosis Patients in a Health Care Center*.

Geoffrey S. Kannan is a senior at St. Petersburg High School in Pinellas County. Although a participant of his high school's International Baccalaureate Program, Geoffrey still makes time for participation in several school organizations. Geoffrey has played the classical piano since the age of four, and among his proudest and most impressive accomplishments he was invited to play with the Florida Orchestra earlier this year. Geoffrey's future goals include attending college and further pursuing his interest in the medical field. This summer he applied his scientific knowledge while working with **Dr. Bruce Kone** on a project entitled *Determination of the Molecular Mechanisms by which Interleukin - 1B Regulates Nitric Oxide Production*.

Amanda M. Kasica worked this summer with **Dr. Josef Neu** on research entitled *The Effect of Glutamine on Catabolism in Premature Infants*. She currently attends St. Petersburg High School where she is a rising senior. Amanda keeps herself busy at school through her memberships in the Spanish and National Honor Societies, Mu Alpha Theta, and SADD. She also volunteers for the Medical Explorers All Children's Hospital and is a member of the Girl Scouts. After graduating from St. Petersburg High, she hopes to pursue a career in medical research in either oncology or hematology.

Susan D. Klein is a student at St. Petersburg High School where she is a member of the National Honor Society and the bowling and tennis teams. Susan spends much of her time with her temple youth group, for which she is presently serving as President. Recently, as an exchange student in Mexico, Susan had the opportunity to study firsthand the business, economy, and culture of a foreign country. Susan hopes to pursue her interest in the fast-growing field of genetics by entering college and majoring in either microbiology or genetics. She worked this summer with **Dr. Alfred S. Lewin** on her research entitled *Site Specific Cleavage of mRNA by a Ribozyme*.

Kerwin M. Kolheffer attends Nova High School in Broward county. He has been a member of the Florida Mathematics League, the MEGSSS (Mathematics Education, Gifted Secondary School Students), and the Class of 1995 Board. Kerwin has also participated in Varsity cross-country at the regional and county levels. As for his future goals, he hopes to attend college in order to pursue his interests in the field of medicine. **Dr. Thomas W. O'Brien** supervised his project this summer, which was entitled *The Expression and Purification of Mitochondrial Protein L31*.

Kalyani Korabathina currently attends St. Petersburg High School in Pinellas county. Among many of her academic positions, Kalyani is the editor of a newspaper for her Sunday school. She has played the piano for six years and has placed third in the Annual Guild Competition. She has practiced karate for almost two years and will soon receive her black belt. Upon her graduation from high school, she plans to attend college and pursue a medical degree. Kalyani was supervised this summer by **Dr. Samuel R. Farrah** while working on her project entitled *Indigenous Bacteriophages Used as a Model for Added Phages during Sludge Treatment*.

Adam D. Laakmann attends Ely High School in Broward county where he has participated in school science fairs in which he has been awarded third place. Adam is a member of the Mu Alpha Theta Math Team and the National Honor Society. He has been awarded two Principal's Awards and has received a certificate for being among the top 30 scorers in the High School Competency Exam (HSCT). Upon graduating from high school, Adam would like to pursue a doctorate in the field of aerospace engineering. This summer, Adam worked on a project under the supervision of **Dr. Carl D. Crane** entitled *Creating a Mark Every Seven Centimeters on Autonomous Survey Vehicle Travels*.

Joyce H. Lee comes to the 1994 SSTP from Ely High School in Broward county. At Ely, Joyce is involved in "Project Ocean," Mu Alpha Theta, Junior Civitan Club, and mock trials. Joyce is also part of the staff of her school's literary magazine, for which she has served as Assistant Editor and Creative Director. Outside school, Joyce plays the violin as part of the Youth Orchestra of Florida. Among her many accolades, Joyce has been awarded first place at the Social Studies Fair, first place at the Broward County Poetry Fair, and the Principal's Award. Joyce was supervised this summer by **Dr. Seymour Block** while conducting research on *Film Stability of a Mixed Surfactant System*.

Stella E. Lee is a rising senior from St. Petersburg High in Pinellas county, where she is involved in the French Honor Society, Congres de la Culture Francaise (CCFF), SADD, ETHOS (environmental club), the International Club, and the Colorguard. Stella also plays tennis for her school's Varsity team, and has played the piano for eleven years and the violin for three years. Outside school, she volunteers at St. Anthony's Hospital and is part of a church youth group. Stella would one day like to become a physician, and to this end she plans to attend college and then go on to medical school. Stella did research this summer with Dr. Dinesh O. Shah on a project entitled *Enzymatic Esterification of Unsaturated Fatty Acids with Glycerol in Foams*.

Jackson Leung has completed his junior year at Chaminade-Madonna High School in Broward county. He has been actively involved in his school, with memberships in the National Honor Society, Mu Alpha Theta, the Key Club, and SADD. Jackson is also involved in community service such as church day care and fundraisers. Jackson's interests lie in engineering, so he plans to pursue a masters in biomedical engineering. His research, which he performed under the direction of Dr. Brij M. Moudgil, was entitled *Effects of Operational Parameters on Phosphate Flotation*.

Michael C. Li will be a senior next year at Crystal River High School in Citrus county. During his junior year, he was active in Student Government, National Honor Society and Interact. During his free time, Michael enjoys playing tennis, and has received two Varsity letters and the coveted Varsity MVP Award in this sport. His future plans include attending college and pursuing a career in the medical field. Michael performed research this summer with Dr. Vladimir Rakov on a project entitled *Electric Fields Produced by Triggered Lightning*.

Roger D. Lie lives in Largo and attends St. Petersburg High School. At school, Roger is a member of the Marching Band, the Spanish Club, and serves as historian for the Civitan Service Club. During his free time, Roger volunteers in the VA Hospital and has received an Honorable Mention Award for his efforts. As part of his future goals, Roger plans to pursue his interest in the field of medicine. This summer he worked with Dr. Seymour S. Block on his project entitled *The Effect of Natural and Artificial Ultraviolet Light on the Toxicity of Titanium Dioxide toward Bacteria*.

Lisa Liu attends Mainland High School in Daytona Beach. Lisa's numerous interests and activities include the French Club, SGA, the Academic Team, the Interact Club, and National Honor Society. Her interest in writing is exhibited by her numerous published works in her school's literary magazine "Torchlights." Lisa also enjoys playing for her school's Varsity Girls' volleyball team and the Varsity tennis team. Lisa has been awarded several awards including the Superintendent's Elite Scholars for High PSAT Scores Award and has placed several times at school and regional science fairs. Upon graduating from high school, Lisa plans to attend college. This summer, she worked under the direction of Dr. Gordon L. Gibby on his project entitled *Availability of Medical Records and Electronic Record-Keeping*.

Ferrin D. Lunestad is a student at St. Augustine High School and would probably like to pursue a doctorate in a scientific discipline. In St. Augustine, Ferrin is part of the Flagler Hospital Medical Explorers and volunteers at St. Francis House Soup Kitchen. At school, she is a member in the National Art Honor Society, Student Government, and the Society for Excellence. Ferrin is also part of her school's swim team and is co-editor of her school's literary magazine. She has received several awards including the Golden Poets Award and several Honor Roll awards. Ferrin worked this summer with Dr. Dinesh O. Shah on research entitled *Use of Film Stability Tests on the Evaluation of Surfactants*.

Henry L. Ma is a rising senior from Boyd Anderson High School in Ft. Lauderdale. Upon graduation, he would like to pursue a career in computer programming. In keeping with his scientific interests, Henry has been part of the JETS TEAMS Competitions, the Math Club, Mu Alpha Theta, and SECME. Henry is also involved in his school's Spanish and National Honor Societies and participates in table tennis, tennis, and wrestling. He has received two awards from SECME for an olympiad that took place at FAU. This summer, Henry had the pleasure of working under the supervision of Mr. John Restrepo while doing research on *Controlling a Robot through Programming in C*.

Erica L. Markovitz had the opportunity this summer to work under Dr. Annette Pashayan on her research entitled *Relationship between Extracellular Glucose Concentration and Brain Cell Death*. From Lake Mary High School in Seminole county, Erica would like to pursue her doctorate in biology upon graduating from high school. In addition to science, she enjoys volunteering at a hospital in Lake Mary and being a member of the All-County Band. At school, Erica is a member of the Latin and National Honor Societies, The Order of the Golden Fleece and the Environmental Club. She has received awards for being on the Principal's Honor Roll and for performing solos at state competitions.

Andrew J. Maywah comes to the 36th SSTP from Plantation where he attends Boyd Anderson High School. A rising senior, Andrew is active in the Computer Club, the Spanish and National Honor Societies, and the Southeastern Consortium for Minorities in Engineering. Andrew has received multiple awards, including the Presidential Academic Fitness Award, the Volunteer Service Award, the Outstanding JROTC Cadet Award, and the Academic Excellence Award in a Saturday science program. Upon graduating from high school, Andrew plans to earn his Master's Degree in electrical engineering. This summer, Andrew worked under the direction of Dr. Keith L. Doty on his project entitled *The Design and Construction of an Autonomous Mobile Robot*.

Agnieszka D. McCort attends Spruce Creek High School in Daytona Beach. As a junior this past year, Agnes was part of the International Baccalaureate Program at Spruce Creek. She is also a member of her school's swim team. Among her many awards, Agnes was selected to be in the Tomorrow's Leaders Today Program and was part of the All-County/All-State Chorus. Agnes is also a member of her school's French Club, for which she serves as President; National Honor Society, Student Government, and the Beta Club. Agnes's interests lie in medicine, and to this end she plans on pursuing a PhD in the medical field. During the summer, she worked under the direct supervision of Dr. John Graham-Pole on research entitled *The Significance of the Creative Arts in the Healing Process*.

Ryan L. McCorvie is a rising senior from Winter Park High School in Orlando. Upon his graduation from high school, he would like to pursue a degree in mathematics or computer science. At Winter Park, Ryan is Vice-President of the Russian Club and is the undeniably undefeated champion of three local debate tournaments and winner of the National Debate Institute's summer tournament. Ryan has also been a member of the first place team in the American Computer Science League's national computer programming competition. He is also a three-year computer champion in Orange County's computer division of the science fair. While taking a break from debating with his roommates, Ryan worked under the supervision of Dr. G. Ron Dalton on a project entitled *A Comparison of the RSA and EL Gamal Public Key Cryptosystems*.

Angela M. Meadows attends the Community School of Naples in Collier County where she is a rising junior. She is the President of her school's Mu Alpha Theta chapter and member of the newspaper and yearbook. Angela also finds time to play for the JV basketball team. Her accolades include the high honor roll, third place in her school's science fair, and a Varsity letter in academics and scholarship. This summer, Angela worked with Dr. William P. McArthur on research entitled *Characterization of the Amount of Anti-LPS from P. Intermedia Antibody Present in Squirrel Monkey Serum*.

Daniel J. Mixson, a senior from Eau Gallie High in Melbourne, had the opportunity to work with Dr. William G. Vernetson this summer on research entitled *The Determination and Comparison of Domestic and Aerosol Derived Elements*. At Eau Gallie, Daniel is involved in the Latin Club, the National Honor Society, and a youth church group. He was a participant in the 1991 Mathcounts competition and received third place for physics in the Brevard Islands Mainland Regional Science Fair in 1991. Upon graduating from high school, Daniel hopes to enter college and pursue his interests in genetic and nuclear engineering.

Thomas F. Mullin attends Nova High School where he is a rising senior. Tom is actively involved in his school's Varsity football team, the Exchange Club, the Hopkins Program, and is a volunteer for the Special Olympics. His academic interests include chemical and physical engineering. This summer, Tom worked on a project entitled *Dr. Ronald A. Cook under the supervision of Testing Steel Siding Using Large Missile Test*.

Biographies

Meena Nahata is a rising senior from J.P. Taravella High School in Broward County. She is currently active in her school's Debate Team, Mu Alpha Theta, and the Foreign Language and National Honor Societies. In her spare time, Meena enjoys Indian dancing and practices karate. Over the past years she has received second place in the Broward County creative writing contest and first and second places in karate tournaments. While at SSTP, Meena worked with Dr. Seymour S. Block on a project entitled *The Effect of Temperature and TiO_2 on Various Types of Bacteria*.

Wilfred L. Nelson would like to pursue his interest in computers by majoring in engineering. From Mainland High School in Daytona Beach, Wilfred spends much of his time involved in extracurricular activities. He is member of his school's Computer Club, National Honor Society, French Club, Tennis Team, and Mu Alpha Theta. He has received many awards including the Scholar and the Citizen of the Week Awards, first place in the Regional School Studies Fair, and second place for French Impromptu in the Foreign Language Festival. Wilfred worked with Dr. David C. Wilson this summer on research entitled *Graphical Representations of Fourier Contours*.

Nancy N. Nguyen lives in Okaloosa County where she attends Niceville High School. At school Nancy is part of the Math and Computer Clubs, National Honor Society, Mu Alpha Theta, and the Human Respect Team. She has been honored in the High Honor Roll and with the Okaloosa Top Honors Award. Nancy is fascinated by the field of medicine and hopes to attend medical school upon graduating from college. Nancy had the opportunity to work with Dr. Melvin J. Fregly this summer on a research project entitled *Cold-Induced High Blood Pressure, Males vs. Females*.

Summer E. Osterman attends Spruce Creek High School where she is currently a senior. Although in the International Baccalaureate Program, Summer makes time for involvement in her school's tennis team and various school organizations. Outside of school, her interests include gymnastics, dancing, and photography. After graduating from high school, Summer hopes to go on to college and to eventually earn a PhD in psychology in order to pursue her fascination by the mind and human behavior. This summer, Summer worked with Dr. Karen E. Koch on research entitled *Sugar Modulated Gene Expression of Sucrose Synthase under Hypoxia*.

Sonal M. Patel is a rising senior from Lincoln Park Academy in Port St. Lucie. Upon graduation, she would like to attend college after which she plans to go on to medical school. Eventually, Sonal hopes to earn a PhD in medicine. A student in the International Baccalaureate Program, Sonal is the Vice President of a youth group and treasurer of both the Spanish Club and Mu Alpha Theta. In her spare time, she enjoys debate and sports including tennis and soccer. She also spends time practicing Kenpo Karate and participating and choreographing Indian classical dances. This summer, Sonal worked with Mr. Larry Korhnaak on her research entitled *Phosphorus Inputs and Outputs of Urban Marshes*.

Vidya Prakasam lives in Miami and is a rising senior at American High School. Her main interests include the field of neurology, and upon graduating from high school she plans to pursue a BS in mathematics. At American High, she is part of the Student Research Apprentice Program at U.M. and is the founder of the Science Club. She also participates in the National Honor Society, the Future Business Leaders of America, and Mu Alpha Theta. In the 36th SSTP, Vidya worked with Dr. D. Yogi Goswami on the project entitled *The Use of Photocatalysis to Cure Sick Building Syndrome*.

James Reeves would like to study cardiology upon graduating from St. Petersburg High School in Palm Harbor. At school, James participates in the Spanish Club, the Spanish Honor Society, Math Honor Society, the Civitan Club, and the National Honor Society. His interest in medicine has led him to be invited to the National Youth Leadership Forum on Medicine in Washington, DC. This summer James worked with Dr. Robert J. Cohen on research entitled *A Quantitative Analysis of Serotonin and Dopamine in *Phycomyces**.

Partho Roy participates in many diverse activities at Hillsborough High School in Tampa. He is a member of the National Beta Club, the Interact Service Club, and the Foundation Service Organization. Partho has participated in the Biomedical and Life Sciences Summer Programs at U.S.F. and participated in the 1994 JSEHS at UF. He spends much of his spare time playing the piano and playing for his school's Marching Band. Partho hopes to pursue his interest in medicine by entering college followed by medical school and eventually becoming a cardiovascular surgeon. This summer, Partho worked with Dr. Seymour S. Block on a research project entitled *Using Photocatalytic Oxidation of Titanium Dioxide to Exterminate *Escherichia coli* Bacteria*.

Rebecca L. Seekamp attends Palm Bay High School in Brevard County. Her many extracurricular activities include membership in MENSA, the Environmental Club, and Student Government. Becky is also the Vice President of her school's French Club. She has attended the "Project Earth" summer program at F.I.T. and was accepted to the 1993 Youth Leadership Brevard Program. After graduating from high school, Becky hopes to earn a BS or MD in a health related field. This summer, she worked under the supervision of Dr. Donald A. Samuelson on research entitled *The Role of Melanin in Age-Related Macular Degeneration*.

Ben Serebrin is a student at Lakeland High School in Polk County. His activities at Lakeland High include science fairs, the Mu Alpha Theta math team, National Honor Society, Chess Club, and band. Ben is also a member of the United Synagogue Youth organization. His avid interest in the computer sciences has prompted him to set engineering as his career goal. This summer, Ben worked under the direction of Mr. William A. Wagner on a project entitled *The Construction of an Object-Avoiding Robot*.

Priti B. Shah is a rising senior at Marjory Stoneman Douglas High School in Coral Springs, FL. Her activities at school include being the secretary of Save What's Left, secretary of the Key Club, and member of Upsilon Sigma (history honors society) and the English Honors Society. Priti also spends her time playing tennis and softball and by participating in an Indian Religious Youth Club. After graduating from high school, Priti hopes to pursue her interest in the preservation of our natural environment by earning a Masters in Environmental Engineering. Her interest in this field brought her to the SSTP this year to work under the guidance of Mr. Sydney Schofield in researching *The Effects of Different Salinities on the Growth of Seagrass*.

Seung-Uk Shon comes to the 36th SSTP all the way from Port Washington, NY, where he attends Paul. D. Schreiber High School. His activities at Schreiber High include participating in the International Club, the Drawing and Painting Club, the Bowling Team, and the Cross-Country Team. His interest and ability in science allowed him to spend the summer working with Dr. Lucy Elizabeth Seiberling on a research project entitled *Design and Construction of a Thermoelectric Air Conditioner for Use in a Solar-Powered House*.

Joshua D. Sims is an active member in many organizations at St. Petersburg High School in Palm Harbor. His activities include the National Honor Society, Mu Alpha Theta, and the Spanish Honor Society. Josh is also a member of his school's diving, soccer, and tennis teams. His interest in medicine have led him to volunteer at a hospital in his hometown and have gained him an invitation to the National Youth Leadership Forum on Medicine in 1994. This summer Josh worked under the supervision of Dr. Kenneth J. Anusavice on research entitled *Influence of Self-Glazing on the Controlled Flaw Flexure Strength of Dental Ceramics*.

Shaun W. Smith is a rising senior at Sandalwood High School in Jacksonville. His main interests mainly involve the field of medicine, and to this end Shaun plans to enter medical school after graduating from college. At Sandalwood Shaun spends time being part of the Interact Club, the Chemistry Demo Team, the Latin and National Honor Societies, the Junior Academy of Science, and the Chorus Show Team. Shaun has also received first place in the Sandalwood High School science fair. In the 36th SSTP, Shaun worked under Dr. Robert Heath on a project entitled *Identification of Novel Attractants for the Caribbean Fruit Fly*.

Sodany S. Son is a senior at St. Petersburg High School in Pinellas County. A student of the International Baccalaureate Program, Sodany spends much of her time participating in her school's French Club, SADD, the International Club, and the French Club. She also serves as the Vice President of Junior Achievements. Sodany plans to pursue a career in the medical field after graduating from high school. She had the pleasure of working under the guidance of Dr. Dinesh O. Shah this summer on research entitled *Enzymatic Esterification of Glycerol with Various Saturated Fatty Acids in Foam*.

Cynthia L. Spence is a senior at Deland High School in Orange City. She would like to have a career in medicine upon graduating from college. At Deland, Cynthia is a member of the Spanish Club, Spanish Honorary Society and the Yearbook staff. She was selected to attend the State Science Fair once and was chosen as alternate another time. Cynthia has received two district social studies prizes and has had her art displayed at district and civic festivals. This summer, Cynthia worked under the supervision of Dr. Eric R. Allen on a project entitled *Hydrocarbon Emissions from Southern Pine Trees and Their Potential Role on Rural Air Quality*.

James A. Trimarco currently attends St. Petersburg High School and is interested in molecular genetics. His many extracurricular activities include being the President of his school's Writing and Journalism Group, volunteering at a Fine Arts Center, and the Model United Nations. James received the PRIDE Award for writing in 1990 and was admitted into the IB Program at his school. After graduating from high school, James hopes to major in biology and eventually enter medical school. James spent the summer working with Dr. Samuel R. Farrah on a research project entitled *Development of a New Selective Media for Zoogloea Bacteria*.

Cynthia S. Truitt attends St. Augustine High School where she will graduate in 1995. At school she is the Historian of the Key Club and of the Future Homemakers of America and is a member of the Future Teachers of America, the National Honor Society, Peer Counseling, and the Varsity basketball team. Cynthia has received second place at the River Region East Science Fair and the Superintendent's Silver Award for the 192-1993 school year. Upon graduating from high school, she would like to pursue a Masters in mathematics. Cynthia had the pleasure of working with Dr. Raymond N. Gallaher on research entitled *Tillage and Nitrogen Requirements for Yield of Sweet Corn Double-Cropped after Velvetbean and Crimson Clover*.

Tanja K. van der Veen is currently a senior at St. Petersburg High School in Pinellas Park, FL. Her academic interests include medicine, biochemistry, and the behavioral and social sciences. At school, Tanja spends her time with the French and National Honor Societies, Mu Alpha Theta, French Club, SADD, and the Medical Explorers. She is also a volunteer at the All Children's Hospital in Pinellas Park. On her free time, Tanja enjoys playing the piano. Upon graduating from high school, Tanja hopes to pursue a medical degree. This summer she worked under the supervision of Dr. Russell M. Bauer on a research project entitled *A Study of the Differences in Memory Loss Experienced by Alzheimer's Patients and the Normal Aging Population*.

Joanna N. Viserta-Galinis comes to the 36th SSTP from Huntington Beach, CA, where she attends Cornelia Connelly High School. Joanna's experiences at school and outside have nurtured her interests in geology, particularly seismology. At Connelly High, Joanna spends her time with the Literary Club, the International Club, ACT (Aware and Caring Teens) and the tennis team. She also volunteers at the Santa Ana Soup Kitchen and for the California Science Teachers Association. Joanna has received second place at her county's science fair and first place in the Connelly High School Science Fair. This summer Joanna worked with Dr. Mark T. Brown on a project entitled *The Loss of Wetlands in Developing Landscapes*.

David A. Wein is a rising senior from St. Petersburg High School in Pinellas County, where he was inducted into the National Honor Society and was selected to attend the French State Conference during his sophomore year. David has also been selected to be a delegate at the Model United Nations Conference of Florida and has been elected to a Board position for the French Honor Society. Although as of yet undecided as to what he would like to study in college, David's interests include the field of chemistry. This summer, David worked in the laboratory of Dr. Eric R. Allen on research entitled *The Control of Nitrogen Oxides in Simulated Jet Engine Exhaust Gases*.

Jason R. Westin has great interest in the area of law, and to this end he would like to attend college where he would concentrate his studies in pre-law. Jason attends Gainesville High School, and his activities there include being member of the track athletic team and the JV soccer team. Jason is also the treasurer of the French Club, the Vice President of the Brain Bowl Team, and a member of the National Honor Society. He has placed in school and county science fairs and was selected as the winner of an Alachua County poetry contest. This summer, Jason enjoyed working with Dr. Brij M. Moudgil on a project entitled *Effects of Operational Parameters on Phosphate Flotation Performance*.

Emily Y. Wu, from Atlantic Community High School, finds time for both a rigorous academic schedule and involvement in various extracurricular organizations. Emily has participated in the Marching Band Festival where she received straight superiors. She has also been part of the JETS TEAMS Competitions and the Palm Beach County Science Fair. She enjoys taking part in track and field events, tutoring, and teaching. Emily has been recognized by Who's Who Among American High School Students. After graduating from high school, Emily hopes to earn a Masters degree in engineering. Working under the supervision of Dr. Alex E.S. Green, Emily conducted research entitled *The Comparison of Different Alternative Fuels*.

David C. Yi is a member of the Class of 1995 from Lake Howell High School in Seminole County. At Lake Howell High, David is part of the School Advisory Council, the Math Team, Chemistry Club, and Student Government. David also serves as the Vice President of the National Honor Society and has received several distinctions including two Presidential Academic Awards. David was also member of the first FAIS Program at UF. He plans to pursue a degree in biology after graduating from high school. As a 36th SSTP participant, David worked under the supervision of Dr. Michael A. Crary on a research project entitled *Vocal Tract Stability in Spasmodic Dysphonia*.

Chemical Sciences

Study Group Leaders: Sandra Jara
Tom Reed

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Danelle Augustin
Balamurali Balasubramaniam
Heather L. Bunker
Sarah Melissa Cutler
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Susan D. Klein

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Kalyani Korabathina
Roger Daniel Lie
Angela Marie Meadows
Meena Nahata
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Partho Roy
Joshua Dierks Sims
Shaun Wells Smith
James A. Trimarco

Engineering and Physics

Study Group Leaders: **Hector Gomez**
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Latonya D. Graham
Michael G. Grumski
Cassandra D. Hobgood
Joyce H. Lee
Stella Eun Lee
Jackson Leung
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Daniel James Mixson, II
Thomas F. Mullin
Vidya Prakasam
Priti Bharat Shah
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Sodany Suong Son
Cynthia Lee Spence
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Jason Robert Westin
Emily Y. Wu

Environmental and Computer Sciences

Study Group Leaders: **Joel DeCastro**
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Debbie Chang
Philip C. Chow
Jonathan David Coleman
Jessica N. Droller
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Robyn M. Hoelle
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Adam David Laakmann
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Participant Autographs

Participant Autographs

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01/03/77	Angelina Ruth Brown
01/05/78	Debbie Chang
01/05/77	Eric J. Edell
01/10/77	David Chang Yi
01/15/77	Agnieszka D. McCort
01/17/77	Thomas F. Mullin
01/21/77	Michael C. Li
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02/06/77	Priti Bharat Shah
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03/01/77	Partho Roy
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03/10/77	Balamurali Balasubramaniam
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03/19/77	Mark Nicholas Haney
03/24/77	Matthew Stuart Engel
04/15/76	Ping-Shan Sarah Huang
04/20/77	Tanja Kay Van der Veen

Participant Birthdays (Alpha Index)

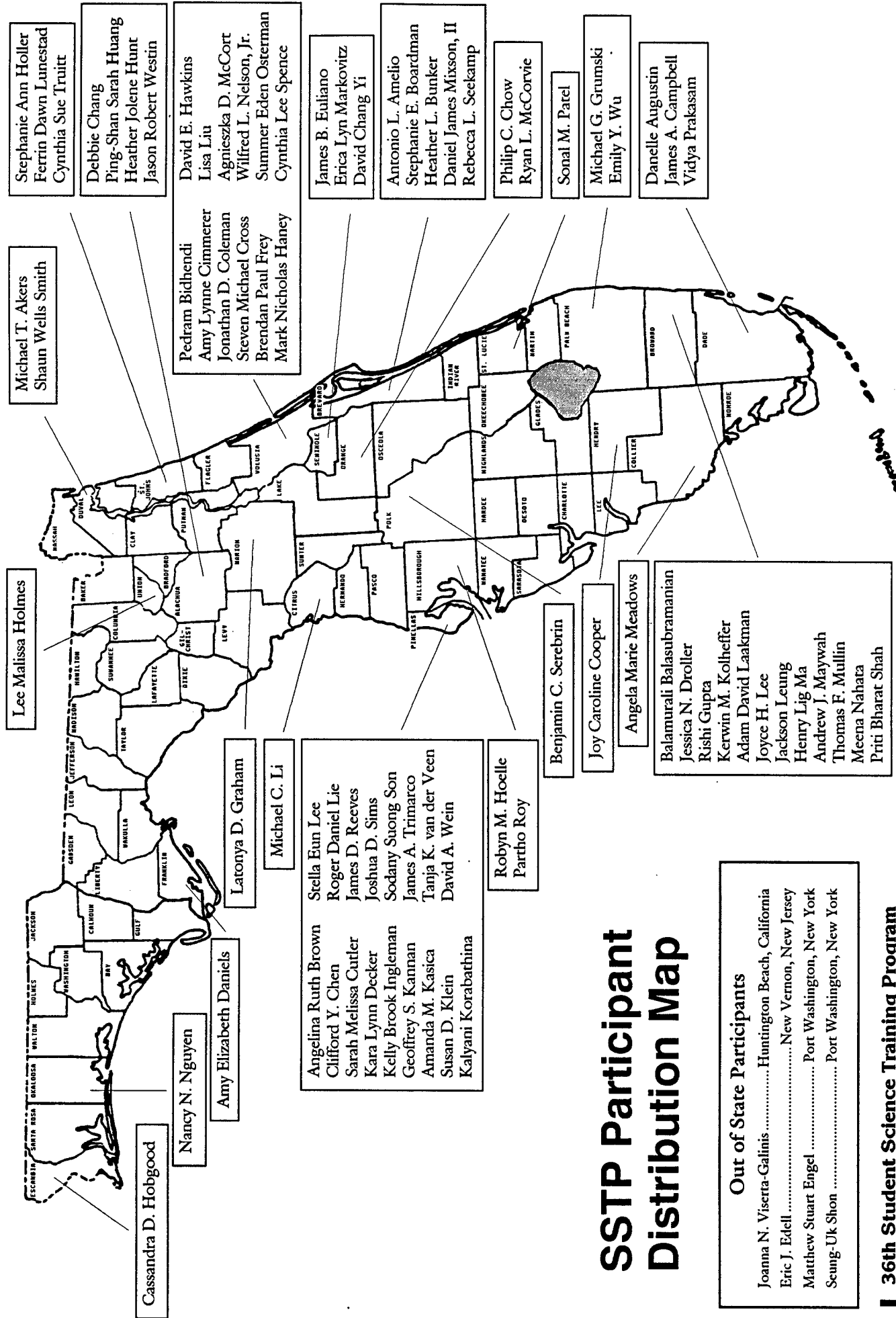
04/21/78 Sonal M. Patel
04/25/76 Pedram Bidhendi
04/27/77 Stephen C. Elliott
05/13/77 James B. Euliano
05/17/77 Daniel James Mixson, II
05/26/77 Stella Eun Lee
05/27/77 Jason Robert Westin
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06/23/77 Rishi Gupta
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07/14/77 David A. Wein
07/19/77 Benjamin Charles Serebrin
07/29/76 Jackson Leung
08/06/77 James Arthur Campbell
08/09/77 Meena Nahata
08/12/77 Joshua Dierks Sims
08/15/77 Jessica N. Droller
08/26/78 Angela Marie Meadows

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10/02/76 Shaun Wells Smith
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10/21/77 Jonathan David Coleman
10/23/76 Seung-Uk Shon
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10/28/77 Michael T. Akers
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11/06/77 Emily Y. Wu
11/09/77 Roger Daniel Lie
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**36th Student Science Training Program
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June 12 - August 6, 1994**

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